

Application No. 10/041,115  
Paper Dated: January 26, 2004  
In Reply to USPTO Correspondence of September 26, 2003  
Attorney Docket No.: 2204-012023



### AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

#### Listing of Claims

Claims 1 and 2 (cancelled).

Claim 3 (currently amended): An austenitic stainless steel that is less susceptible to cracking during forming, which has a composition comprising approximately 0-0.04 mass % C, approximately 0.1-1.0 mass % Si, approximately 0-5.0 mass % of Mn, approximately 0-0.0060 mass % S, greater than 0 mass % up to 0.003 mass % Al, approximately 5-9 mass % Ni, approximately 15-20 mass % Cr, approximately 0-0.035 mass % N, approximately 1.0-5.0 mass % Cu and the balance being Fe except inevitable impurities, the composition has a value of  $d = 1.9 \text{ Ni} + 32\text{C} + 27\text{N} + 0.15(\text{Mn} + \text{Cu}) - 1.5 \text{Cr} + 8.5 \leq 0$  and  $a = \text{Ni} + 0.5 \text{Cr} + 0.7(\text{Mn} + \text{Cu}) - 18 \geq 0$ , and has non-metallic  $\text{MnO-SiO}_2-\text{Al}_2\text{O}_3$  inclusions, which contains not less than approximately 15 mass % of  $\text{SiO}_2$  and not more than approximately 40 mass % of  $\text{Al}_2\text{O}_3$ , dispersed in its matrix.

Claim 4 (withdrawn): A method of manufacturing austenitic stainless steel, which comprises the steps of:

preparing a molten steel having the composition comprising approximately 0-0.04 mass % C, approximately 0.1-1.0 mass % Si, approximately 0-5.0 mass % Mn, approximately 0-0.0060 mass % S, approximately 0-0.003 mass % Al, approximately 5-9 mass % Ni, approximately 15-20 mass % Cr, approximately 0-0.035 mass % N, approximately 1.0-5.0 mass % Cu and the balance being Fe except inevitable impurities;

covering said molten steel with basic slag in a vacuum or non-oxidizing atmosphere; and

deoxidizing said molten steel by addition of a Si alloy whose Al content is controlled less than approximately 1.0 mass %.

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Claim 5 (original): The austenitic stainless steel according to claim 3, further including a boron content up to a max of 0.03 mass %, if the sulfur content is greater than 0.0030 mass %.

Claim 6 (cancelled).

Claim 7 (withdrawn): The method of manufacturing austenitic stainless steel according to claim 4, further comprising the step of achieving not less than approximately 15 mass % of  $\text{SiO}_2$  and not more than approximately 40 mass % of  $\text{Al}_2\text{O}_3$  dispersed in the matrix of the solidified steel.

Claim 8 (withdrawn): The method of manufacturing austenitic stainless steel according to claim 4, further comprising the step of adding boron up to a max of 0.03 mass %, if the sulfur content is greater than 0.0030 mass %.

Claim 9 (withdrawn): The method of manufacturing austenitic stainless steel according to claim 4, further including the step of keeping the basicity of the slag preferably in a range of 1.4-3.0.

Claim 10 (withdrawn): The method of manufacturing austenitic stainless steel according to claim 4, further comprising the step of achieving a composition preferably with a value of  $d \leq 0$  and  $a > 0$  where

$$d = 1.9 \text{ Ni} + 32\text{C} + 27\text{N} + 0.15(\text{Mn}+\text{Cu}) - 1.5\text{Cr} + 8.5 \text{ and}$$

$$a = \text{Ni} + 0.5\text{Cr} + 0.7 (\text{Mn} + \text{Cu}) - 18.$$

Claim 11 (previously presented): The austenitic stainless steel according to claim 3, containing a Cu content greater than 1 mass %.